



FACT SHEET

Metal Surface Treatment & Finishing

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Honeywell Specialty Materials manufactures a wide range of chemicals to serve the requirements of the metal surface treatment, electroplating and finishing markets.

Honeywell Specialty Materials' expertise is in the synthesis and manufacture of industrial scale high purity and ultra high purity inorganic chemicals. These materials are manufactured at Honeywell's plant in Seelze, Germany, which is certified against ISO/TS 16949, ISO 9001 and 14001. They are marketed under the brandname Riedel-de Haën®. Honeywell is focused on gaining a fundamental understanding of the technology challenges and needs encountered by customers, and developing customized solutions to meet these needs.

Honeywell Specialty Materials, based in Morristown, N.J., is a \$4.7 billion, global leader in providing customers with high-performance specialty materials, including fluorine products; specialty films and additives; advanced fibers and composites; intermediates; specialty chemicals; electronic materials and chemicals; and technologies and materials for petroleum refining.

Metal surface treatment

Applications	Products	Role of Product
Metal Surface Pre-treatment	Aluminium nitrate-9-hydrate	Etching agent
	Ammonium chromate Ammonium dichromate Potassium chromate	Chromium passivation
	Ammonium fluoride Ammonium fluoroborate Ammonium hexafluorosilicate	Etching agent and fluorine source
	Ammonium hydrogen difluoride Hydrofluoric acid Potassium fluoride Potassium hydrogen fluoride Sodium fluoride Sodium hydrogen fluoride	Fluoride source
	Chromium(III) nitrate-9-hydrate	Chromium source
	Cobalt(II) acetate-4-hydrate	Cobalt source
	Copper(II) chloride-1-hydrate Copper(II) nitrate-3-hydrate	Copper source
	Fluoroboric acid	pH adjustment
	Hexafluorosilicic acid Hexafluorotitanic acid Hexafluorozirconic acid	Non chromium surface passivation Benefits - Non-hexavalent chromium formula component - Consistent free HF levels - Low Cl content
	Hydroxylammonium sulfate	Accelerator

Metal surface treatment

Applications	Products	Role of Product
Metal Surface Pre-treatment	Iron(III) nitrate-9-hydrate Manganese(II) chloride-1-hydrate Manganese(II) nitrate-4-hydrate	Phosphatization treatment component
	Nickel fluoride-4-hydrate	Cold sealing of aluminum
	Nickel nitrate-6-hydrate	Nickel source
	Potassium hexafluorotitanate	Surface passivation and activation layers
	Potassium hexafluorozirconate Potassium fluoroborate Sodium tetrafluoroborate	Surface passivation and adhesion promoter

Electroplating

Honeywell offers a comprehensive range of products to meet the needs of the electroplating industry.

Benefits applying to all listed products:

- High purity and low heavy metal content
- High consistency and quality
- Low tendency towards precipitation
- High stability

Applications	Products	Role of Product
Electroplating	Fluoroborates and Fluorides	
	Fluoroboric acid	pH adjustment
	Copper fluoroborate	Source of copper ion
	Antimony fluoride	Surface hardener
	Lead fluoroborate	Source of lead ion
	Tin fluoroborate	Source of tin ion
	Zinc fluoroborate	Source of zinc ion
	Methane Sulfonates	
	Methane sulfonic acid	pH adjustment
	Methane disulfonic acid	pH adjustment and accelerator
	Lead methansulfonate	Source of lead ion
	Tin methansulfonate	Source of tin ion
	Sulfates and Sulfamates	
	Copper sulfate	Source of copper ion
	Cobalt sulfamate	Source of cobalt ion
	Indium sulfamate	Source of indium ion
	Nickel sulfamate	Source of nickel ion
	Other Additives	
	Hypophosphorous acid	Reducing agents for electroless nickel plating
	Sodium hypophosphite	
Potassium hypophosphite		

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